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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/266,237	03/10/1999	WARREN M. FARNWORTH	97-1433	5524

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EXAMINER
KOBERT, RUSSELL MARC

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 11/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/266,237	FARNWORTH ET AL.	
	Examiner	Art Unit	
	Russell M Kobert	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-12,17,18,25-27,31 and 32* is/are pending in the application.

4a) Of the above claim(s) *3,4,13-16,19-24,28-30 and 33-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 5-12, 17, 18, 25-27 and 31-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. Applicant's arguments with respect to claims 1, 2, 5-12, 17, 18, 25-27 and 31-32 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, 5-12, 17, 18, 25-27 and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Fjelstad et al (5802699).

Fjelstad et al anticipates (Figures 9 and 10) an interconnect for testing a semiconductor component (268) having a bumped contact (270) comprising:

a substrate (diagonally striped region shown in Figure 10); and

a contact (238) on the substrate configured to electrically engage the bumped contact, the contact comprising a recess (that part of 238 which extends into region 266) in the substrate having a size approximately equal to that of the bumped contact,

and a plurality of flexible metal leads (242) cantilevered over the recess configured to support the bumped contact within the recess and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each metal lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant (col 15, ln 59 – col 16, ln 2); as recited in claim 1.

Fjelstad et al anticipates (Figures 9 and 10) an interconnect for testing a semiconductor component (268) having a bumped contact (270) comprising:

a substrate (diagonally striped region shown in Figure 10); and

a contact (238) on the substrate configured to electrically engage the bumped contact, the contact comprising a recess (that part of 238 which extends into region 266) in the substrate having a size approximately equal to that of the bumped contact, a plurality of flexible leads (242) cantilevered over the recess configured to support the bumped contact within the recess and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a selected spring constant and at least one projection configured to penetrate the bumped contact (see Figure 19, item 743), and a connecting segment (240) substantially encircling a periphery of the recess configured to electrically connect the leads to one another; as recited in claim 2.

As to claim 5, Fjelstad et al shows a conductive via (see Figure 6, item 48) in the substrate in electrical communication with the connecting segment.

Fjelstad et al anticipates (Figures 9 and 10) an interconnect for testing a semiconductor component (268) having a bumped contact (270) comprising:

a substrate (diagonally striped region shown in Figure 10);

a recess (266) in the substrate; and

a plurality of flexible metal leads (242) on the substrate cantilevered over the recess configured to electrically engage the bumped contact and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each metal lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant, and a shape that substantially matches a topography of the bumped contact (col 15, ln 59 – col 16, ln 2); as recited in claim 6.

As to claim 7, Fjelstad et al shows each lead includes a projection (see Figure 19, item 743) configured to penetrate the bumped contact.

Fjelstad et al anticipates (Figures 9 and 10) an interconnect for testing a semiconductor component (268) having a bumped contact (270) comprising:

a substrate (diagonally striped region shown in Figure 10);

a recess (266) in the substrate;

a plurality of flexible leads (242) on the substrate cantilevered over the recess configured to electrically engage the bumped contact and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant, and a shape that

substantially matches a topography of the bumped contact (col 15, ln 59 – col 16, ln 2); and a connecting segment (240) on the substrate electrically connecting the leads to one another; as recited in claim 8.

As to claim 9, Fjelstad et al shows a conductive via (see Figure 6, item 48) in the substrate in electrical communication with the connecting segment.

As to claim 10, Fjelstad et al shows a contact (see Figure 6, item 50) on the substrate in electrical communication with the conductive via.

As to claim 11, Fjelstad et al shows the recess has four sides and the plurality of leads comprise four leads (see Figure 14 which shows 4 leads numbered 542) on the four sides.

Fjelstad et al anticipates (Figures 9 and 10) an interconnect for testing a semiconductor component (268) having a bumped contact (270) comprising:

a substrate (diagonally striped region shown in Figure 10);

a recess (266) in the substrate;

a plurality of leads (242) on the substrate cantilevered over the recess and configured to move and to electrically engage the bumped contact within the recess, each lead having a radius of curvature substantially equal to a radius of the bumped contact (col 15, ln 59 – col 16, ln 2); and

a segment (240) on the substrate electrically connecting the leads; as recited in claim 12.

As to claim 17, Fjelstad et al shows each lead has a cantilevered length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant (col 15, ln 59 – col 16, ln 2).

As to claim 18, Fjelstad et al shows a conductive via (see Figure 6, item 48) in the substrate in electrical communication with the segment.

Fjelstad et al anticipates (Figures 9, 10 and 18) a system for testing a semiconductor component (268) having a bumped contact (270) comprising:

a carrier (see Figure 18) for retaining the semiconductor component (768 or 268); an interconnect (724) on the carrier comprising a substrate (730 or diagonally striped region shown in Figure 10), a recess (736 or 266) in the substrate having a size approximately equal to that of the bumped contact, a plurality of leads (742 or 242) cantilevered over the recess configured to electrically engage the bumped contact and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, and a segment on the substrate electrically connecting the leads (col 15, ln 59 – col 16, ln 2; col 21, ln 36-49); and

a test circuitry in electrical communication with the leads configured to apply test signals to the component (col 21, ln 52-55); as recited in claim 25.

As to claim 26, Fjelstad et al shows each lead has a radius of curvature substantially equal to a radius of the bumped contact (inherent property of leads 242 shown in Figure 10).

As to claim 27, Fjelstad et al shows a conductive via (see Figure 6, item 48) in the substrate in electrical communication with the segment.

Fjelstad et al anticipates (Figures 9 and 10) a system for testing a semiconductor component (268) having a bumped contact (270) comprising:

a testing apparatus (col 4, ln 57-59);

an interconnect on the testing apparatus comprising:

a substrate (diagonally striped region shown in Figure 10);

a recess (266) in the substrate having a size approximately equal to that of the bumped contact;

a plurality of leads (242) on the substrate configured to electrically engage the bumped contact, each lead cantilevered over the recess and configured to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant, and a shape substantially matching a topography of the bumped contact (col 15, ln 59 – col 16, ln 2); and

a connecting segment (240) on the substrate electrically connecting the leads; and

a test circuitry (col 21, ln 52-55) in electrical communication with the connecting segment; as recited in claim 31.

As to claim 32, Fjelstad shows a conductive via (see Figure 6, item 48) in the substrate in electrical communication with the connecting segment.

4. The Information Disclosure Statement (IDS) filed on August 6, 2002 has been considered. Cited references: U.S. Patent Nos. 6,232,243 and 6,242,932 have been crossed through because they had already been considered in a prior IDS. Additionally, the citation of U.S. Application Serial No. 09/275,791 has been crossed through. It is noted however that U.S. Application Serial No. 09/275,791 has now issued as U.S. Patent No. 6,437,591 and has been cited on the Notice of References Cited attached hereto.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hembree et al (6037667) shows an apparatus for receiving a bumped contact of a semiconductor component wherein the apparatus comprises a structure (Figure 4C) having 4 leads for supporting the bumped contact.

A shortened statutory period for response to this action is set to expire three month(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (703) 308-5222.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Russell M. Kobert
Patent Examiner
Group Art Unit 2829
November 13, 2002

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